WHAT IS CLAIMED IS:

1. An observing tool comprising an observation target storage section having a mirror.

2. An observing tool used for storing an observation target that is used in an observing method which observes an observation target, by illuminating the target with vertical lighting via an optical system having an objective lens, comprising an reflection plane which reflects said vertical lighting when the observation is performed.

3. The observing tool according to claim 2, wherein,

said reflection plane is provided on a surface to be facing to the objective lens when the observation is performed.

4. The observing tool according to claim 2, wherein,

said reflection plane is provided on a surface opposite to the surface that is to be facing to the objective lens when the observation is performed.

5. The observing tool according to any one of claims 2 to 4, comprising,

a flow-channel which said observation target passes through.

6. The observing tool according to any one of claims 2 to 5, wherein,

a storage section to store said observation target comprises an inlet to inject liquid containing the observation target, and an outlet to flow the liquid out.

7. An observing method which observes an observation target by illuminating the target with vertical lighting via an optical system having an objective lens, wherein,

an observing tool which stores said observation target is provided with a reflection plane to reflect said vertical lighting when observation is performed, and

said observation target is stored in said observing tool and said observation target is observed.

8. The observing method according to claim 7, wherein,

said reflection plane is provided on a surface to be facing to the objective lens when the observation

is performed.

9. The observing method according to claim 7, wherein,

said reflection plane is provided on a surface opposite to the surface that is to be facing to the objective lens when the observation is performed.

10. The observing method according to any one of claims 7 to 9,

said observation target is a micro transparent object.

11. The observing method according to any one of claims 7 to 10, wherein,

said observing tool has a container to hold liquid, and

said container stores the observation target with the liquid containing the observation target.

12. The observing method according to claim 11, wherein,

said observation target is a cell, and

said liquid is a culture solution.

13. The observing method according to any one of claims

7 to 12, wherein,

said observation target is stored in said observing tool so that a distance between said observation target and said reflection plane becomes a half or less than the focal depth of said optical system.

14. The observing method according to any one of claims 7 to 13, wherein,

said observation target is stored in said observing tool so that distance *d* between the observation target and the reflection plane satisfies the following formula (1),

$$d \leq W/(2NA^2) \quad \ldots \quad (1)$$

(in the formula, *d* represents the distance between the observation target and the reflection plane, *W* represents a wavelength of the light employed in the observation, and *NA* represents a numerical aperture of the optical system).

15. The observing method according to any one of claims 7 to 14, wherein,

said observation target is stored in said observing tool so that the numerical aperture of the illumination light against the observation target

becomes smaller than the numerical apertures of the objective lens.

16. The observing method according to any one of claims 7 to 15, wherein,

said observation target is stored in said observing tool so that distance *d* between the observation target and the reflection plane satisfies the following formula (2),

$$d > F/(4\tan(\sin^{-1}NA)) \quad \ldots (2)$$

(in the formula, *d* represents the distance between the observation target and the reflection plane, *F* represents a visual field diameter of the optical system, and *NA* represents a numerical aperture of the optical system.)